Amendments to the Claims

1-22. (canceled)

23. (new): A corrosion resistant brine fluid made by the process comprising:

providing a brine selected from the group consisting of packer fluids, completion fluids and workover fluids, the brine comprising:

water; and

at least one source of water-soluble zinc cations to form a brine with the water; and

adding a brine-soluble additive selected from the group consisting of carbonates, bicarbonates, and mixtures thereof where the cation of the additive is selected from the group consisting of sodium, potassium, magnesium, ammonium and mixtures thereof, where the additive is in the form of a powder in an amount effective to increase the pH of the brine fluid and at a controlled rate that forms no precipitate;

where the density of the brine ranges from about 8.4 to about 22.5 pounds/gal, and where in the case there are at least two different sources of water-soluble cations the true crystallization temperature (TCT) and the last crystal to dissolve (LCTD) temperature independently range between about -70 to about 20°F, and where in the case there are at least three different sources of water-soluble cations the true crystallization temperature (TCT) and the last crystal to dissolve (LCTD) temperature independently range between about 80 to about 0°F.

24. (new): The corrosion resistant brine fluid of claim 23 further comprising at least one non-emulsifier and at least one wetting agent.

25. (new): The corrosion resistant brine fluid of claim 23 where the source of water-soluble zinc cations is at least one zinc salt selected from the group consisting of chloride, bromide, acetate, and formate salts.

26. (new): The corrosion resistant brine fluid of claim 23 where the source of water-soluble zinc cations is selected from the group consisting of zinc chloride and zinc bromide.

27. (new): The corrosion resistant brine fluid of claim 23 where the additive is selected from the group consisting of sodium carbonate, sodium bicarbonate, and mixtures thereof.

28. (new): The corrosion resistant brine fluid of claim 23 where the additive is present in a mole ratio to the total amount of water-soluble cation ranging from about 0.05/1 to about 2.0/1.

29. (new): The corrosion resistant brine fluid of claim 23 where the additive is present in an amount from 0.1 to 10 wt.% based on the total amount of water-soluble cation.

30. (new): The corrosion resistant brine fluid of claim 23 where in the process of adding the additive, the additive powder ranges in size from about 5 to about 500 microns.

31. (new): The corrosion resistant brine fluid of claim 1 where in the case there are two different sources of water-soluble cations, the sources are zinc bromide and calcium bromide, and in the case there are three different sources of water-soluble cations, the sources are zinc bromide, calcium chloride and calcium bromide.

32. (new): A corrosion resistant brine fluid made by the process comprising:

providing a brine selected from the group consisting of packer fluids, completion fluids and workover fluids, the brine comprising:

water;

at least one non-emulsifier;

at least one wetting agent; and

at least one source of water-soluble zinc cations to form a brine with the water; and

adding a brine-soluble additive selected from the group consisting of carbonates, bicarbonates, and mixtures thereof where the cation is selected from the group consisting of sodium, potassium, magnesium, ammonium and mixtures thereof, where the additive is in the form of a powder, in an amount effective to increase the pH of the brine fluid and at a controlled rate that forms no precipitate;

where the density of the brine ranges from about 8.4 to about 22.5 pounds/gal, and where in the case the sources of water-soluble cations are at least zinc bromide and calcium bromide the true crystallization temperature (TCT) and the last crystal to dissolve (LCTD) temperature independently range between about -70 to about 20°F, and where in the case the sources of water-soluble cations are at least zinc bromide, calcium chloride and calcium bromide the true crystallization temperature (TCT) and the last crystal to dissolve (LCTD) temperature independently range between about 80 to about 0°F.

33. (new): A method for increasing the corrosion resistance of a brine fluid comprising:

providing a brine comprising:

water;

at least one source of water-soluble zinc cations to form a brine with the water; and

adding a brine-soluble additive selected from the group consisting of water-soluble carbonates, water-soluble bicarbonates, and mixtures thereof where the additive is in the form of a powder and in an amount effective to increase the pH of the brine and at a controlled rate that forms no precipitate, to give a corrosion resistant brine fluid.

34. (new): The method of claim 33 where in adding the additive, the additive has a cation selected from the group consisting of sodium, potassium, magnesium, ammonium and mixtures thereof.

35. (new): The method of claim 33 where in providing the brine, the density of the brine ranges from about 8.4 to about 22.5 pounds/gal (about 1.0 to about 2.7 kg/l).

36. (new): The method of claim 33 where in providing the brine, the source of water-soluble zinc cations is at least one salt selected from the group consisting of chloride, bromide, acetate, and formate salts.

37. (new): The method of claim 33 where in providing the brine, the source of water-soluble zinc cations is selected from the group consisting of zinc chloride and zinc bromide.

38. (new): The method of claim 33 where in adding the additive, the additive is selected from the group consisting of sodium carbonate, sodium bicarbonate, and mixtures thereof.

39. (new): The method of claim 33 where in adding the additive, the additive is present in a mole ratio to the total amount of water-soluble cation ranging from about 0.05/1 to about 2.0/1.

40. (new): The method of claim 33 where in adding the additive, the additive is present in an amount from 0.1 to 10 wt.% based on the total amount of water-soluble cation.

41. (new): The method of claim 33 further comprising pumping the brine fluid downhole in a hydrocarbon recovery operation.

42. (new): The method of claim 41 further comprising contacting the brine fluid with iron-based metals or alloys and where a corrosion rate of the metals and alloys is reduced as compared with an identical brine fluid absent the additive.

43. (new): The method of claim 33 where the additive powder ranges in size from about 5 to about 500 microns.

44. (new): The method of claim 33 further comprising adding at least one non-emulsifier and at least one wetting agent.

45. (new): The method of claim 33 where the corrosion resistant brine fluid has a plurality of different sources of water-soluble cations selected from the group consisting of two or three,

where in the case there are at least two different sources of water-soluble cations the true crystallization temperature (TCT) and the last crystal to dissolve (LCTD) temperature independently range between about -70 to about 20°F, and

where in the case there are at least three different sources of water-soluble cations the true crystallization temperature (TCT) and the last crystal to dissolve (LCTD) temperature independently range between about 80 to about 0°F.

46. (new): The method of claim 45 where in the case there are two different sources of water-soluble cations, the sources are zinc bromide and calcium bromide, and in the case there are three different sources of water-soluble cations, the sources are zinc bromide, calcium chloride and calcium bromide.